1. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{4x^2 - 25x + 25}{12x^3 - 7x^2 - 42x + 40}$$

   A. Horizontal Asymptote of $y = 0.333$ and Oblique Asymptote of $y = 3x + 17$

   B. Oblique Asymptote of $y = 3x + 17$.

   C. Horizontal Asymptote at $y = 5.000$

   D. Horizontal Asymptote of $y = 0$

   E. Horizontal Asymptote of $y = 0.333$

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2. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{8x^3 + 2x^2 - 51x + 45}{12x^2 + x - 20}$$

   A. Vertical Asymptote of $x = 0.667$ and hole at $x = 1.25$

   B. Vertical Asymptote of $x = -1.333$ and hole at $x = 1.25$

   C. Vertical Asymptotes of $x = -1.333$ and $x = 1.5$ with a hole at $x = 1.25$

   D. Vertical Asymptotes of $x = -1.333$ and $x = 1.25$ with no holes.

   E. Holes at $x = -1.333$ and $x = 1.25$ with no vertical asymptotes.

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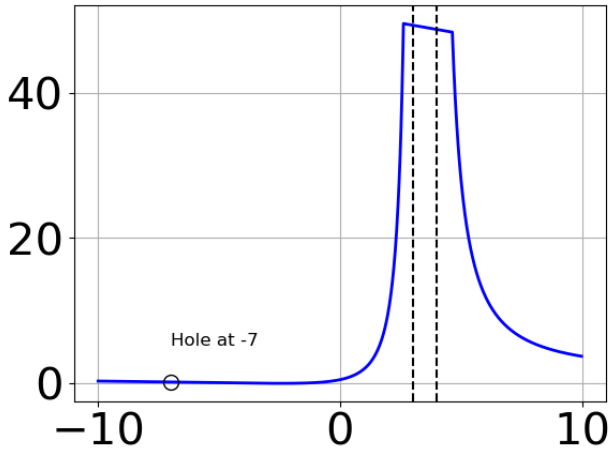
3. Which of the following functions *could* be the graph below?

x=4



x=3

A. $f(x) = \dfrac{x^3 - 11.0x^2 + 36.0x - 36.0}{x^3 - 37.0x - 84.0}$

B. $f(x) = \dfrac{x^3 - 12.0x^2 + 41.0x - 42.0}{x^3 - 37.0x - 84.0}$

C. $f(x) = \dfrac{x^3 + 12.0x^2 + 41.0x + 42.0}{x^3 - 37.0x + 84.0}$

D. $f(x) = \dfrac{x^3 - 19.0x - 30.0}{x^3 - 37.0x + 84.0}$

E. None of the above are possible equations for the graph.

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4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{9x^3 + 33x^2 - 32x - 80}{3x^2 + 10x - 25}$$

A. Horizontal Asymptote at $y = -5.0$

B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x + 1$

C. Horizontal Asymptote of $y = 3.0$

D. Oblique Asymptote of $y = 3x + 1$.

E. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 3x + 1$

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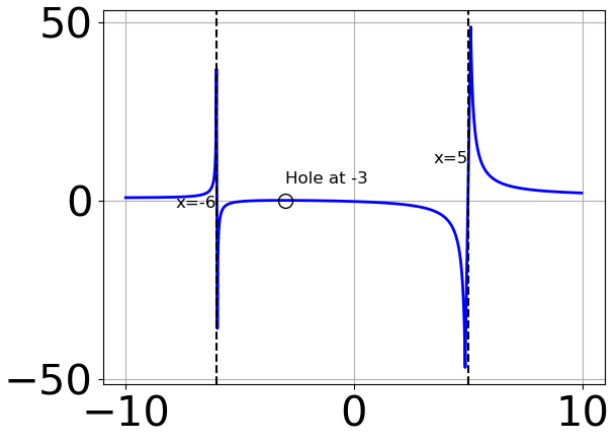
5. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 9.0x^2 + 26.0x - 24.0}{x^3 - 4.0x^2 - 27.0x + 90.0}$

B. $f(x) = \dfrac{x^3 + 5.0x^2 + 2.0x - 8.0}{x^3 + 4.0x^2 - 27.0x - 90.0}$

C. $f(x) = \dfrac{x^3 + 9.0x^2 + 26.0x + 24.0}{x^3 + 4.0x^2 - 27.0x - 90.0}$

D. $f(x) = \dfrac{x^3 + x^2 - 34.0x + 56.0}{x^3 - 4.0x^2 - 27.0x + 90.0}$

E. None of the above are possible equations for the graph.

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6. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{6x^3 - 23x^2 + 29x - 12}{12x^2 - 7x - 12}$$

A. Vertical Asymptote of $x = 0.5$ and hole at $x = 1.333$

B. Vertical Asymptotes of $x = -0.75$ and $x = 1.333$ with no holes.

C. Holes at $x = -0.75$ and $x = 1.333$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = -0.75$ and $x = 1.5$ with a hole at $x = 1.333$

E. Vertical Asymptote of $x = -0.75$ and hole at $x = 1.333$

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7. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{6x^3 + 5x^2 - 49x - 60}{3x^2 - 5x - 12}$$

A. Oblique Asymptote of $y = 2x + 5$.

B. Horizontal Asymptote at $y = 3.0$

C. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x + 5$

D. Horizontal Asymptote of $y = 2.0$

E. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 2x + 5$

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8. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{5x^2 + 7x - 6}{15x^3 + 16x^2 - 5x - 6}$$

A. Horizontal Asymptote at $y = -2.000$

B. Horizontal Asymptote of $y = 0.333$

C. Horizontal Asymptote of $y = 0.333$ and Oblique Asymptote of $y = 3x - 1$

D. Horizontal Asymptote of $y = 0$

E. Oblique Asymptote of $y = 3x - 1$.

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9. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{6x^3 + 25x^2 + x - 60}{6x^2 + 11x - 10}$$

A. Vertical Asymptotes of $x = 0.667$ and $x = -2.5$ with no holes.

B. Vertical Asymptote of $x = 1.0$ and hole at $x = -2.5$

C. Holes at $x = 0.667$ and $x = -2.5$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = 0.667$ and $x = 1.333$ with a hole at $x = -2.5$

E. Vertical Asymptote of $x = 0.667$ and hole at $x = -2.5$

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10. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{8x^3 - 22x^2 + 3x + 18}{6x^2 + x - 15}$$

A. Vertical Asymptotes of $x = -1.667$ and $x = -0.75$ with a hole at $x = 1.5$

B. Vertical Asymptotes of $x = -1.667$ and $x = 1.5$ with no holes.

C. Vertical Asymptote of $x = -1.667$ and hole at $x = 1.5$

D. Holes at $x = -1.667$ and $x = 1.5$ with no vertical asymptotes.

E. Vertical Asymptote of $x = 1.333$ and hole at $x = 1.5$
